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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/657,883	09/09/2003	James R. Hager	H0003011DIV	2619
128	7590	08/04/2004	EXAMINER	
HONEYWELL INTERNATIONAL INC. 101 COLUMBIA ROAD P O BOX 2245 MORRISTOWN, NJ 07962-2245			ALSOMIRI, ISAM A	
			ART UNIT	PAPER NUMBER
			3662	

DATE MAILED: 08/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/657,883

Applicant(s)

HAGER ET AL.

Examiner

Isam A Alsomiri

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15 and 17-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 15, 17, 18, 21 and 22 is/are rejected.
- 7) ☒ Claim(s) 19 and 20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 15, 17-18, and 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hager et al. US 6,362,776 in view of Hager US 6,025,800 and Mo et al. US 6,296,612. Referring to claims 15 and 18, Hager '776 discloses in figure 2 a radar receiving returns at each of a right channel 9C, a left channel 9B, and an ambiguous channel 9A, said method comprising: sampling the radar data from each of the channels; filtering the samples 38A-C; converting the filtered samples to doppler frequency signals; filtering the doppler frequency signals with a band pass filter, the filter centered at the doppler frequency 42A-C; and determining phase relationships between the right, left, and ambiguous channels using the filtered doppler frequency signals 46B. Hager '776 is silent about the filtered samples to a Doppler frequency comprises converting the filtered samples into in-phase and quadrature components of the returned swaths. However, such processing the in-phase and the quadrature components is well known. Hager '800 teaches a similar radar system as Hager '776 including the filtered samples to a doppler frequency comprises converting the filtered samples into in-phase and quadrature components of the returned swaths (see figure 5, col. 5 lines 1-24). It

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would have been obvious to modify Hager'776 system to include processing the in-phase and the quadrature for more accurate measurement and phase comparison.

Furthermore, both of Hager '776 and Hager '800 are silent about including in-phase and quadrature components of the returned swaths, using four cascaded second order infinite impulse response filters. Mo teaches a filtering method to remove clutter in spectral doppler I/Q data prior to FFT processing using an IIR high-pass filter implemented as a cascaded on three or four second order stages (see col. 3 lines 32-45). It would have been obvious to process the samples in the in-phase and quadrature components using four cascaded second order infinite impulse response filters to remove the clutter and unwanted signals and for more accurate measurement and phase comparison.

Referring to claim 17, as mentioned above Hager'800 teaches the filtered samples into in-phase and quadrature components, and also comprises applying a sample delay to phase shift an in- phase component by 90 degrees (see figure 5). It would have been obvious to modify Hager'776 system to include processing the in-phase and the quadrature for more accurate measurement and phase comparison.

Referring to claims 21 and 22, Hager '776 discloses in figure 2 A radar signal processing circuit comprising: a radar gate correlator 36 configured to sample radar data at a sampling rate, a correlation bass pass filter 38A-C filtering the sampled radar data and configured to stretch the sampled radar data to a continuous wave (CW) signal, and a band pass filter centered on the doppler frequency 42. Hager '776 is silent about a mixer configured to generate a quadrature component of the CW signal using a sample delay element and further configured to down sample an in-phase component and the quadrature component of the CW

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signal to a doppler frequency. However, a mixer to generate the in-phase and the quadrature components is well known. Hager '800 teaches a similar radar system as Hager '776 including a mixer a delay element to generate the in-phase and the quadrature components (see figure 5, col. 5 lines 1-24). It would have been obvious to modify Hager'776 system to include processing the in-phase and the quadrature for more accurate measurement and phase comparison.

Furthermore, both of Hager '776 and Hager '800 are silent about the mixer comprising at least one using four cascaded second order infinite impulse response filters. Mo teaches a filtering method to remove clutter in spectral doppler I/Q data prior to FFT processing using an IIR high-pass filter implemented as a cascaded on three or four second order stages (see col. 3 lines 32-45). It would have been obvious to filter the samples in the in-phase and quadrature components using four cascaded second order infinite impulse response filters to remove the clutter and unwanted signals and for more accurate measurement and phase comparison.

Allowable Subject Matter

Claims 19-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Isam A Alsomiri whose telephone number is 703-305-5702. The examiner can normally be reached on Monday-Thursday and every other Friday (8:30-5:00).

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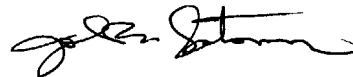
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas H Tarcza can be reached on 703-306-4171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Isam Alsomiri



July 12, 2004



JOHN B. SOTOMAYOR
PRIMARY EXAMINER